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MANUFACTURE OF SOLID ELECTROLYTE TYPE FUEL CELL

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ABSTRACT

PURPOSE: To reduce gas permeation in an electrolyte film, and improve power generating efficiency and a fuel utilization factor by sealing a surface layer of the electrolyte film while using ion implantation or using the ion implantation and sputtering film formation at the same time.

CONSTITUTION: This fuel cell is constituted by laminating a base body tube 1, a fuel electrode 2, an electrolyte film 11 and an air electrode 4 in order upon each other, and the electrolyte film 11 is constituted of a low pressure plasma thermal spraying coating film 12 and an ion implantation film 13 whose surface is sealed by an ion implantation method. This electrolyte film 11 is constituted of this coating film 12 and the ion implantation film 13 whose surface layer is sealed by using ion impantation or using the ion implantation and sputtering film formation at the same time after the low pressure plasma thermal spraying coating film 12 is formed. Thereby, since the thin film type solid electrolyte film 11 which cannot be obtained by conventional mere low pressure plasma thermal spraying can be obtained, high power generating efficiency and a high fuel utilization factor can be obtained, so that fossil fuel consumption can be reduced and CO(sub 2) discharge can be reduced by improving the power generating efficiency.